WHAT IS CLAIMED IS:

1. An excavation fluid composition useful for enlarging a cavity in the earth comprising a synthetic polymer and sodium silicate, said composition being formulated so as to enable the fluid in contact with unstable or sandy soils in the selected areas of the excavation to react and form silicate-based derivatives with lesser solubility, and movement and thus improve soil stability at the excavation wall.

2. The excavation fluid composition of claim 1 further comprising an alkalinity source, said alkalinity source being present from 0.01% to 10.0% by weight of the excavation fluid.

3. The excavation fluid composition of claim 1 wherein said synthetic polymer comprises one or more monomers selected from:

a. acrylamide, methacrylamide, acrylic acid, methacrylic acid, maleic acid, fumaric acid;

b. maleic anhydride, methacrytic anhydride, itaconic acid, acrylic acid dimer(BCEA), M-isopropenylbenzyl dimethyl isocyanate and the nonionic associative monomer derivatives, esters or urethane, so produced containing nonionic surfactant starting materials prepared from ethylene oxide and/or, propylene oxide and/or, butylene oxide and/or C_1 to C_{20} alkyl alcohols and/or C_8 to C_{12} alkyl phenols;

c. itaconic acid, vinylsulfonic acid, styrene sulfonic acid, 2-acrylamido-2-methylpropane sulfonic acid, methallylsulfonic acid, vinyl acetic acid, 4- methylpentenoic acid, allylacetic acid, B-hydroxyethylacrylate, x-haloacrylic acid;

d. M- isopropenylbenzyl dimethyl isocyanate and its nonionic derivatives prepared from alkyl alcohols;

e. methylenebisacrylamide, N-methylol acrylamide, triallyl cyanurate, vinyl crotonate, divinylbenzene, allyl methacrylate;

f acrylic acid esters of sucrose, hexallyl sucrose, trimethylolpropane triacrylate, ethylene glycol diacrylate, diethylene glycol diacrylate, ethylene glycol dimethacrylate, and the like;

g. methacrylic anhydride esters or maleic anhydride esters of sucrose, sorbitol, sorbitol esters with fatty acids;

h. guar gum, starch, ethylated starch, oxidized starch, starch fatty acid esters, dodecylsuccinic anhydride modified starch, agar gum, xanthan gum, arabic gum or galacto-mannin derivatives prepared from methacrylic anhydride or maleic anhydride or M-isopropenylbenzyl dimethyl isocyanate resulting in hybrid monomers;

i. vinyl acetate, N-vinyl formamide, N-vinyl acetamide, N-vinyl pyrolidone, styrene, butadiene, isoprene, chloro-butadiene, vinyl chloride, vinylidene chloride, C_1 to C_{20} acrylate and methacrylate esters;

j. methacryloxyethyl dimethylamine, methacrylamido propyl dimethylamine, dimethyl diallyl ammonium chloride, diethyl diallyl ammonium chloride, and their methyl sulfate and methyl chloride derivatives and water soluble or dispersible salts and combinations thereof.

5. A method of stabilizing the wall of an earthen excavation, said method comprising:

placing in said earthen excavation a digging fluid, said digging fluid comprising a polymer and sodium silicate, said composition being formulated so as to enable the fluid in contact with unstable or sandy soils in the selected areas of the excavation to react and form silicate-based derivatives with lesser solubility, and movement and thus improve soil stability at the excavation wall.

6. The method of claim 5 wherein said digging fluid further comprises an alkalinity source, said alkalinity source being present from 0.01% to 10.0% by weight of the excavation fluid.

7. The method of claim 5 wherein said polymer comprises one or more monomers selected from:

a. acrylamide, methacrylamide, acrylic acid, methacrylic acid, maleic acid, fumaric acid;

b. maleic anhydride, methacrylic anhydride, itaconic acid, acrylic acid dimer(BCEA), M-isopropenylbenzyl dimethyl isocyanate and the nonionic associative monomer derivatives, esters or urethane, so produced containing nonionic surfactant starting materials prepared from ethylene oxide and/or, propylene oxide and/or, butylene oxide and/or C_1 to C_{20} alkyl alcohols and/or C_8 to C_{12} alkyl phenols;

c. itaconic acid, vinylsulfonic acid, styrene sulfonic acid, 2-acrylamido-2-methylpropane sulfonic acid, methallylsulfonic acid, vinyl acetic acid, 4- methylpentenoic acid, allylacelic acid, B-hydroxyethylacrylate, x-haloacrylic acid;

d. M- isopropenylbenzyl dimethyl isocyanate and its nonionic derivatives prepared from alkyl alcohols;

e. methylenebisacrylamide, N-methylol acrylamide, triallyl cyanurate, vinyl crotonate, divinylbenzene, allyl methacrylate;

f acrylic acid esters of sucrose, hexallyl sucrose, trimethytolpropane triacrylate, ethylene glycol diacrylate, diethylene glycol diacrylate, ethylene glycol dimethacrylate, and the like;

g. methacrylic anhydride esters or maleic anhydride esters of sucrose, sorbitol, sorbitol esters with fatty acids;

h. guar gum, starch, ethylated starch, oxidized starch, starch fatty acid esters, dodecylsuccinic anhydride modified starch, agar gum, xanthan gum, arabic gum or galacto-mannin derivatives prepared from methacrylic anhydride or maleic anhydride or M-isopropenylbenzyl dimethyl isocyanate resulting in hybrid monomers;

i. vinyl acetate, N-vinyl formamide, N-vinyl acetamide, N-vinyl pyrolidone, styrene, butadiene, isoprene, chloro-butadiene, vinyl chloride, vinylidene chloride, C_1 to C_{20} acrylate and methacrylate esters;

j. methacryloxyethyl dimethylamine, methacrylamido propyl dimethylamine, dimethyl diallyl ammonium chloride, diethyl diallyl ammonium chloride, and their methyl sulfate and methyl chloride derivatives and water soluble or dispersible salts and combinations thereof.

8. The method of claim 5 wherein said digging fluid comprises:

a. a synthetic polymer,

b. sodium silicate being 0.1% to 50.0% of the fluid composition

c. sodium hydroxide being 0.01% to 10.0% of the fluid composition.

9. A process of improving boreholes, trenches or other excavations' dimensional stability by including sodium, potassium or other soluble silicate into a mixture of water, soils, sands and a synthetic polymer water based fluid during excavation and enlargement.

10. The process of claim 9 where the drilling fluid is a synthetic polymer fluid between the pH of 4 and 13.

11. The process of claim 9, wherein the mixed fluid in the excavation , in a range of density of 1.01, as with fresh polymer fluid prior to contacting the excavation, up to 1.20 g/cc after the silicate added fluid has reacted with the slurry system in the active excavation cavity.

12. The process of claim 9, wherein the silicates are at a mole ratio of SiO_2 to M_2O of 1:1 to 4:1, respectively wherein M is an alkali metal.

13. The process of claim 9, wherein the polymer fluid is a synthetic polymer or polymers based fluid containing at least one polymer prepared from the list of monomers: acrylamide, methacrylamide, acrylic acid, methacrylic acid, maleic acid, fumaric acid; maleic anhydride, methacrylic anhydride, itaconic acid, acrylic acid dimer(BCEA), M-isopropenylbenzyl dimethyl isocyanate and the nonionic associative monomer derivatives, esters or urethane, so produced containing nonionic surfactant starting materials prepared from ethylene oxide and/or, propylene oxide and/or, butylene oxide and/or C_1 to C_{20} alkyl alcohols and/or C_8 to C_{12} alkyl phenols; itaconic acid, vinylsulfonic acid, styrene sulfonic acid, 2-acrylamido-2-methylpropane sulfonic acid, methallylsulfonic acid, vinyl acetic acid, 4-methylpentenoic acid, allylacetic acid, B-hydroxyethylacrylate, x-haloacrylic acid; M- isopropenylbenzyl dimethyl isocyanate and its nonionic derivatives prepared from alkyl alcohols; methylenebisacrylamide, N-methylol acrylamide, triallyl cyanurate, vinyl crotonate, divinylbenzene, allyl methacrylate; acrylic acid esters of sucrose, hexallyl sucrose, trimethylolpropane triacrylate, ethylene glycol diacrylate, diethylene glycol diacrylate, ethylene glycol dimethacrylate, and the like; methacrylic anhydride esters or maleic anhydride esters of sucrose, sorbitol, sorbitol esters with fatty acids; guar gum, starch, ethylated starch, oxidized starch, starch fatty acid esters, dodecylsuccinic anhydride modified starch, agar gum, xanthan gum, arabic gum or galacto-mannin derivatives prepared from methacrylic anhydride or maleic anhydride or M-isopropenylbenzyl dimethyl isocyanate resulting in hybrid monomers; vinyl acetate, N-vinyl formamide, N-vinyl acetamide,, N-vinyl pyrolidone, styrene, butadiene, isoprene, chloro-butadiene, vinyl chloride, vinylidene chloride, C_1 to C_{20} acrylate and methacrylate esters; methacryloxyethyl dimethylamine, methacrylamido propyl dimethylamine, dimethyl diallyl ammonium chloride, diethyl diallyl ammonium chloride, and their methyl sulfate and methyl chloride derivatives and water soluble or dispersible salts and combinations thereof.

14. The process of claim 9, wherein the reaction of the silicate salts with the synthetic polymer fluid, soils, sands and other materials in the excavation cavity to form tackified

masses which assist in the creation of a superior fluid loss barrier at the formation interface.

15. The process in claim 9, wherein the included silicate salts assist in the dispersion and carrying of colloids within the polymer slurry thus assisting in increasing the specific gravity of the slurry increased solids dispersion throughout the active synthetic polymer slurry.

16. The process of claim 9, wherein the creation of semi-solid tackified masses and the improvement in the creation of a pressure transfer barrier between and slightly within the formation and the slurry resulting in improved fluid loss control combined with the increased differential pressure within the slurry causing superior excavation side wall support a more gauge and superior performing foundation element is created.

17. (Amended) An anhydrous acid solidification mixture comprising:

a. a structural material, said structural material being used to provide stability, strength, support, foundation, or volume to the solidification mixture and being selected from: sands, soils, clays, pebbles, cobbles, marble, granite, stones, gravel, rocks, bentonite, cement, polymer fibers, sandstone and combinations thereof,

b. a polymer component;

c. an accelerator compound, said accelerator compound being selected from chemicals capable of producing carbon dioxide in acidic environments, chemicals capable of producing chlorine gas in acidic conditions, inorganic chloride salts, inorganic sulfate and inorganic sulfite salts;

an acidic component, said acidic component being selected from solid chemicals between the pH of 4 and 13; and

e. a silicate component said silicate component being selected from sodium orthosilicate, sesquisilicate, metasilicate, disilicate and combinations thereof.

18. The anhydrous acid solidification mixture of claim 16 wherein said accelerator compound is selected from the group consisting of potassium and sodium salts of hydrogen carbonate, potassium and sodium salts of carbonate, sodium and potassium hypochlorite, and combinations thereof, and wherein said acidic components is selected from the group consisting of citric acid, the salts of citric acid, sulamic acid, and combinations thereof.